

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

CARNEGIE INSTITUTION OF
WASHINGTON and M7D CORPORATION,

Plaintiffs,

v.

PURE GROWN DIAMONDS, INC. and
IIA TECHNOLOGIES PTE. LTD. d/b/a
IIA TECHNOLOGIES,

Defendants.

Case No. 20-cv-0189 (JSR)

**DEFENDANTS' MEMORANDUM OF LAW IN SUPPORT OF
MOTION TO DISMISS PLAINTIFFS' COMPLAINT**

GIBBONS P.C.

William P. Deni, Jr.
J. Brugh Lower
One Pennsylvania Plaza, 37th Floor
New York, NY 10119-3701
Tel: (212) 613-2000
Fax: (212) 290-2018

**FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP**

Anand K. Sharma (*pro hac vice*)
J. Preston Long (*pro hac vice*)
901 New York Avenue, NW
Washington, DC 20001
Tel: (202) 408-4000
Fax: (202) 408-4400

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I. INTRODUCTION

Defendants Pure Grown Diamonds, Inc. (“PGD”) and IIa Technologies Pte. Ltd. (“2AT”) respectfully submit this this Memorandum of Law in support of Defendants’ Motion to Dismiss Plaintiffs’ Complaint under Fed. R. Civ. P. 12(b)(6). Defendants seek an order (1) cancelling the asserted claims of U.S. Patent Nos. RE41,189 (“’189 Patent”) and 6,858,078 (“’078 Patent”) for reciting patent-ineligible subject matter under 35 U.S.C. § 101; and (2) dismissing Plaintiffs’ Complaint for failing to plausibly allege any acts of direct patent infringement and for failing to plausibly allege the requisite scienter for contributory, induced, or willful infringement.

II. THE ASSERTED CLAIMS ARE UNPATENTABLE UNDER § 101

A. Summary of Applicable Legal Standards

1. Motions to Dismiss Under 35 U.S.C. § 101

Whether a claim is drawn to patent-ineligible subject matter is a “threshold” question of law. *Bilski v. Kappos*, 561 U.S. 593, 602 (2010); *see also CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1369 (Fed. Cir. 2011) (“Issues of patent-eligible subject matter are questions of law”). The Federal Circuit “ha[s] repeatedly recognized that in many cases it is possible and proper to determine patent eligibility under 35 U.S.C. § 101 on a Rule 12(b)(6) motion.” *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1373-74 (Fed. Cir. 2016). Although certain aspects of the relevant inquiries can involve questions of fact, “not every § 101 determination contains genuine disputes over the underlying facts material to the § 101 inquiry.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018). Further, “claim construction is not an inviolable prerequisite to a validity determination under § 101.” *Content Extraction & Transmission LLC v. Wells Fargo Bank Nat'l Ass'n*, 776 F.3d 1343, 1349 (Fed. Cir. 2014); *see also Cleveland Clinic Found. v. True Health Diagnostics LLC*, 859 F.3d 1352, 1360 (Fed. Cir. 2017) (“[W]e have repeatedly affirmed § 101 rejections at the motion to dismiss stage, before claim construction or

significant discovery has commenced.”).

2. Substantive Legal Standards Applicable to 35 U.S.C. § 101

Title 35 of the U.S. Code, section 101, states: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain patent therefor.” But § 101 is not without limits. It contains “an important implicit exception” that “[I]aws of nature, natural phenomena, and abstract ideas,” which form the “basic tools of scientific and technological work,” are not eligible for patent protection. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216-17 (2014) (citations omitted).

Alice establishes a two-step framework. *See* 573 U.S. at 217-18. Under step one, a court must determine whether the claims are directed to a patent-ineligible category, such as a natural phenomenon or law. *Id.* A claim is “directed to” a natural phenomenon or law if that is the “focus of the claimed advance.” *Am. Axle & Mfg. v. Neapco Holdings LLC*, 939 F.3d 1355, 1361 (Fed. Cir. 2019). The inquiry asks whether the claims are “directed to a result or effect that itself is the [natural phenomenon/law] and merely invoke generic processes and machinery[,]” or whether the claims instead “focus on a specific means or method that improves the relevant technology.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016); *see also Alice*, 753 U.S. at 223 (“[T]he claims in *Diamond v. Diehr*, 450 U.S. 175 (1981)] were patent eligible because they improved an existing technological process”).

If a court finds the claims are “directed to” a natural phenomenon or law, it must proceed to step two, which is to assess whether the claims “contain[] an ‘inventive concept’ sufficient to ‘transform’ the claimed [natural phenomenon/law] into a patent-eligible application.” *Alice*, 573 U.S. at 221. To be patent-eligible, such application “must provide something inventive, beyond mere ‘well-understood, routine, conventional activity.’” *Genetic Techs.*, 818 F.3d at 1376 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73 (2012)). The

inventive concept at step two must be “evident in the claims.” *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017), *cert. denied*, 138 S. Ct. 672 (2018). But “the prohibition against patenting [natural phenomenon/law] cannot be circumvented by attempting to limit the use of [the natural phenomenon/law] to a particular technological environment.” *Bilski*, 561 U.S. at 610-11 (describing the holding in *Parker v. Flook*, 437 U.S. 584 (1978)).

3. Representative Claims

Where “the claims ‘are substantially similar and linked to the same’ law of nature” or natural phenomenon, the law does not require a two-step *Alice* analysis for each claim. *Cleveland Clinic*, 859 F.3d at 1360 (quoting *Content Extraction*, 776 F.3d at 1348). Because all the claims recite the same natural phenomenon or law under such circumstances, they “rise and fall together.” *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1341 (Fed. Cir. 2013); *accord Intellectual Ventures II LLC v. JP Morgan Chase & Co.*, No. 13-cv-3777 (AKH), 2015 U.S. Dist. LEXIS 56092, at *8-9 n.2 (S.D.N.Y. Apr. 28, 2015). A court only needs to analyze a representative claim. *See, e.g., Quantum Stream, Inc. v. Charter Commc’ns, Inc.*, 309 F. Supp. 3d 171, 179 (S.D.N.Y. 2018) (applying a representative-claim analysis).

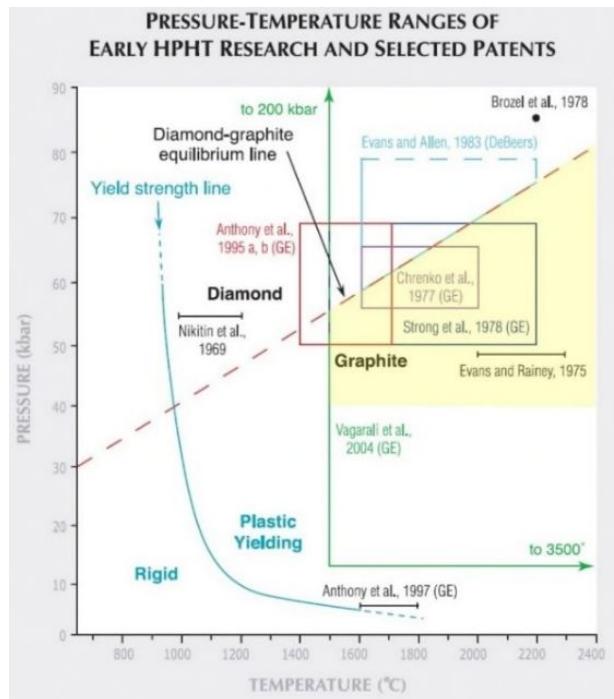
B. The Asserted Claims of the ’189 Patent Are Unpatentable Under § 101

As early as the 1960s, scientists discovered a phenomenon: The optical properties of a diamond change when subjected to high-pressure/high-temperature (“HPHT”) conditions. Using conventional HPHT technology developed in that era, the ’189 Patent merely applies that fact to a particular subset of diamonds—those made using chemical vapor deposition (“CVD”). Because, as Plaintiffs acknowledge, CVD diamonds “have the same physical, chemical and optical qualities as diamonds mined from the earth,” Compl. ¶ 77, ECF No. 1, they exhibit the same natural phenomenon. Accordingly, the claims of the ’189 Patent are not patentable. They are, “in effect, comparable to a claim that the formula $2[\pi]r$ can be usefully applied in

determining the circumference of a wheel.” *Parker v. Flook*, 437 U.S. 584, 595 (1978).

1. HPHT Diamond Treatment

Diamonds are made of carbon. What distinguishes them from other forms of carbon, like graphite, is their atomic arrangement; diamonds form in a “diamond cubic” crystal. Although the atoms theoretically form a perfect lattice, real-word crystals have defects, like missing atoms, deformations, cracks, or impurity atoms. In fact, diamonds are classified based on their impurity atoms. Generally speaking, Type I diamonds contain dissolved nitrogen atoms, whereas Type II diamonds do not. *See* Ex. A at 1:20-22.¹ In Type Ia diamonds, the nitrogen appears in clusters, and in Type Ib diamonds, the nitrogen appears as single atoms. Ex. B ¶ [0004]. Type IIa diamonds lack any significant impurities, and Type IIb diamonds contain boron. *Id.* ¶ [0006].



Ex. C at Fig. 11 (annotated)

Because of impurities—and structural defects—“[t]he color of diamonds can range from clear and colorless to yellow, orange, red, blue, brown, and even green.” Ex. B ¶ [0007]. About

¹ Exhibits A through P are attached to the accompanying Declaration of J. Preston Long.

98% of mined diamonds have “a brownish tinge,” *id.*, which can appear in both Type I and Type II diamonds for various reasons, *see id.* ¶¶ [0007]-[0010]. As early as the 1960s, scientists discovered that subjecting diamonds to high pressures and temperatures changes a diamond’s optical properties. *See Ex. C at 11-12.* Not only does “the crystal undergo[] some change in color or shade,” it can also result in “a colorless crystal which has many uses as jewelry, and which frequently is of gem quality.” Ex. A at 6:40-50. The figure above “illustrates the relative experimental conditions of this early work, as well as that of later researchers.”² Ex. C at 11.

“The high pressures of the HPHT process are required to prevent diamond from converting to CO₂ gas or graphitizing [i.e., converting to graphite] while heated to the high temperatures needed to change the color.” *Id.* at 11, Fig. 11 (caption). As early as 1975, while experimenting on Type I and Type II diamonds (both natural and lab-grown), GE scientists discovered that diamonds exposed to conditions in the graphite-stable region for short times do not undergo significant graphitization. *See Ex. D at 1-2* (“In a 5 minute run, the amount of graphitization was negligible”); Ex. A at 5:4-11 (annealing below the diamond-graphite line for “one hour without significant graphitization”). GE scientists also discovered that such conditions are linked with improvement in the optical properties of both Type I and Type II diamonds. *See Ex. A at 5:4-11, 6:40-50, 7:8-10, Fig. 1; Ex. B* ¶¶ [0021], [0033]-[0034].

2. Overview of the ’189 Patent

The ’189 Patent attempts to monopolize this natural link between HPHT conditions and optical properties in CVD-grown diamonds. Claim 1, which is representative, reads:

1. A method to improve the optical clarity of CVD diamond where the CVD diamond is single crystal CVD diamond, by raising the CVD diamond to a set temperature of at least 1500° C. and a pressure of at least 4.0 GPA outside of the diamond stable phase.

² Yellow highlighting has been added to indicate the range recited in claim 1 of the ’189 Patent.

Compl. Ex. B at 4:10-14, ECF No. 1-2.

As discussed in the preceding section, these HPHT conditions were not new, nor was the discovery linking those conditions with improved optical clarity. *See* Ex. C at 11 (“[S]cientists had recognized more than 30 years earlier that treatment under such conditions could change diamond color.”); Ex. A at 4:57-5:30 (describing HPHT conditions, including those recited in claim 1), 6:40-50 (stating the result can be “a colorless crystal which has many uses as jewelry”); Ex. B ¶¶ [0033]-[0034] (describing “conditions in the graphite stable region”), ¶¶ [0041]-[0042] (explaining that diamonds subjected to such conditions “changed to clear”). The ’189 Patent even admits it was known “that annealing of synthetic and natural type I or type II diamonds in the range of 1900°C to 2600°C at pressures in the range of 50 to 80 kbars [i.e., 5 to 8 GPa] causes the visible color of the diamond to change.” Compl. Ex. B at 1:33-39, ECF No. 1-2.

The only purported distinction in the ’189 Patent is application of the claimed HPHT conditions specifically to CVD-grown diamonds. As Plaintiffs acknowledge in the Complaint, however, CVD “lab grown diamonds have the same physical, chemical and optical qualities as diamonds mined from the earth.” Compl. ¶ 77, ECF No. 1. Moreover, “CVD diamonds, like all diamonds, are sorted into [Types Ia, Ib, IIa, and IIb]” and “are typically Type IIa.” *Id.* ¶ 80.

3. Argument

a. Claim 1 of the ’189 Patent Is Representative

Claim 1 is representative because claim 2 is directed to the same natural link between HPHT conditions and optical properties. Claim 2 depends from claim 1 but does not change the underlying natural phenomenon or use anything except conventional HPHT technology. The CVD diamond is simply a “coating upon another material.” Compl. Ex. B at 2:62-64, ECF No. 1-2. Because “the claims [of the ’189 Patent] are substantially similar and linked to the same law of nature”—namely, the link between HPHT conditions and optical properties—“analyzing

representative [claim 1] is proper.” *Cleveland Clinic*, 859 F.3d at 1360 (quotation omitted).

b. Alice Step One: The Claims Recite a Natural Phenomenon

Under step one of *Alice*, a court must determine whether the claims are directed to a natural phenomenon. 573 U.S. at 216-17. To do that, it must ask whether the claims are “directed to a result or effect that itself is the [natural phenomenon/law] and merely invoke generic processes and machinery[,]” or whether the claims instead “focus on a specific means or method that improves the relevant technology.” *McRO*, 837 F.3d at 1314.

Here, claim 1 expressly recites an unpatentable natural phenomenon—the effect of applying certain HPHT conditions to a diamond. It states that when a “single crystal CVD diamond” is exposed to “a set temperature of at least 1500° C. and a pressure of at least 4.0 GPA outside of the diamond stable phase,” the result is “improve[d] . . . optical clarity.” Compl. Ex. B at 4:10-14, ECF No. 1-2. “A patent is not good for an effect, or the result of a certain process . . .”³ *Am. Axle*, 939 F.3d at 1361 (quoting *Le Roy v. Tatham*, 55 U.S. (14 How.) 156, 174-75 (1853)). “Where claims of a method patent are directed to an application that starts and ends with a naturally occurring phenomenon, the patent fails to disclose patent eligible subject matter if the methods themselves are conventional, routine and well understood applications in the art.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1378 (Fed. Cir. 2015).

Plaintiffs cannot credibly argue the method of claim 1 was not, by 2002, a “conventional, routine [or] well understood application[] in the art.” *Id.* GE researchers discovered the link between optical properties and the same HPHT conditions in the 1970s when they devised ways to achieve HPHT conditions in the lab. *See* Ex. A at Fig. 1 (including claimed HPHT conditions),

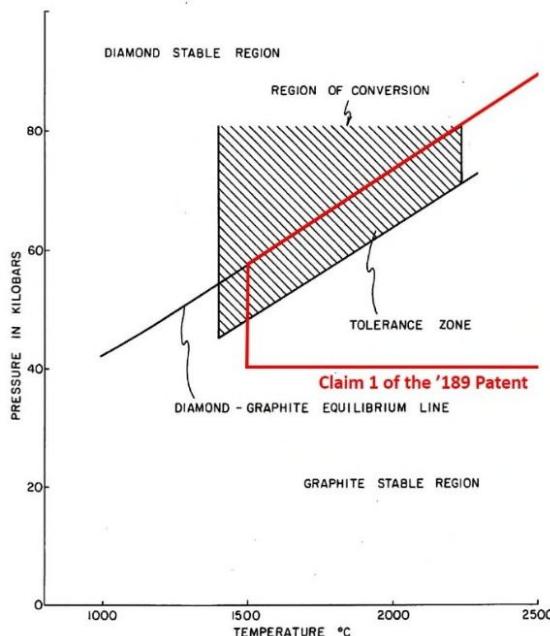
³ Improving optical clarity does not even have patentable weight. *See, e.g., Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1375 (Fed. Cir. 2001) (finding the phrase “for reducing hematologic toxicity” was non-limiting because it “merely express[ed] a purpose”).

6:40-50 (explaining such conditions yield “a colorless crystal which has many uses as jewelry, and which frequently is of gem quality”); *see also* Ex. B ¶ [0033] (showing claimed HPHT conditions), ¶¶ [0041]-[0042] (explaining the diamonds “had changed to clear” when subjected to such conditions). Rather than improving or even changing this decades-old technology, the ’189 Patent merely applies it to CVD-grown diamonds, in particular, using the same conditions and conventional HPHT equipment to achieve the same result. *See* Compl. Ex. B at 2:53-56, ECF No. 1-2 (discussing two GE patents); *compare id.* at 3:1-5 (claiming at least 1500°C @ at least 4 GPa), *with* Ex. A at 5:8-23 (disclosing 1500°C @ 4.8 GPa; 1600°C @ 5.1 GPa; 2000°C @ 6.3 GPa; 2200°C @ 7 GPa), Fig. 1 (showing HPHT conditions). To suggest this difference is patentable would be, “in effect, comparable to a claim that the formula $2[\pi]r$ can be usefully applied in determining the circumference of a wheel.” *Flook*, 437 U.S. at 595.

The ’189 Patent acknowledges that conventional HPHT conditions improve the optical clarity of Type IIa natural diamonds. *See* Compl. Ex. B at 1:39-41, ECF No. 1-2 (“For type II natural diamond, the color changes from brown to colorless . . .”). And, as Plaintiffs’ Complaint notes, “CVD diamonds are typically Type IIa.” Compl. ¶ 80, ECF No. 1. Moreover, Plaintiffs’ Complaint explains that CVD-grown diamonds “have the same physical, chemical and optical qualities as diamonds mined from the earth.” *Id.* ¶ 77. The difference between man-made CVD diamonds and naturally occurring diamonds is, therefore, immaterial to the natural phenomenon recited in the claims of the ’189 Patent. *See Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC*, 915 F.3d 743, 752 (Fed. Cir. 2019) (“[U]se of a man-made molecule in a method claim employing standard techniques . . . may still leave the claim directed to a natural law.”); *Genetic Veterinary Scis., Inc. v. LABOKLIN GmbH & Co.*, 933 F.3d 1302, 1316 (2019) (similar).

Although the ’189 Patent contains self-serving language suggesting that CVD diamonds

should be expected to darken rather than clarify under HPHT conditions, that suggestion lacks credibility on its face. It derives from a specious comparison between “[h]eating CVD diamond *in vacuum*” and heating under HPHT conditions. Compl. Ex. B at 2:29-44, ECF No. 1-2 (emphasis added); *see also id.* at 1:26-32. GE explained in the 1970s that the pressure should “be sufficient to . . . prevent[] significant graphitization,” which it showed is over 40 kilobars (4 GPa) at 1500°C. Ex. A at 4:57-5:23 (“at least about 48 kilobars”); *see also id.* at Fig. 1 (below). The ’189 Patent, however, only considers experiments performed at *3 trillion times less* pressure than needed to prevent graphitization. *See* Ex. E at 2 (“The samples were annealed . . . in vacuum at 10^{-5} torr [i.e., 1.33×10^{-11} GPa] . . .”). Contrary to the self-serving speculation in the ’189 Patent, GE’s work, illustrated below, showed that HPHT conditions in the graphite-stable region could clarify diamonds without significant graphitization. *See id.* at 5:4-11 (“[T]he Region of Conversion below the diamond-graphite equilibrium line is a tolerance zone which shows the lower pressures which are operable in the present process for limited periods of time.”), Fig. 1 (below); Ex. B ¶¶ [0022], [0033]-[0034].



Ex. A at Fig. 1 (annotated)

“[J]ust like *Ariosa*, the method starts and ends with naturally occurring phenomena with no meaningful non-routine steps in between The claims are therefore directed to a natural [phenomenon].” *Cleveland Clinic*, 859 F.3d at 1361.

c. Alice Step Two: The Claims Lack an Inventive Concept

Step two of *Alice* asks whether the claims “contain[] an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” 573 U.S. at 221. “For process claims that encompass natural phenomenon, the process steps are the additional features that must be new and useful.” *Ariosa*, 788 F.3d at 1377. Accordingly, method patents that survive the step-two inquiry do so “because they improve[] an existing technological process.” *Alice*, 573 U.S. at 223 (discussing the claims in *Diehr*); *Cleveland Clinic*, 859 F.3d at 1362 (“In *CellzDirect*, the inventors . . . improve[d] existing methods for preserving liver cells.” (citing *Rapid Litig. Mgmt. v. CellzDirect, Inc.*, 827 F.3d 1042, 1051 (Fed. Cir. 2016))). Method claims fail at step two when “the steps in the claimed processes (apart from the natural laws themselves) involve well-understood, routine, conventional activity previously engaged in by researchers in the field.” *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73 (2012).

Here, the claims do not recite new or useful process steps. They perform a conventional HPHT process on CVD diamonds to induce a well-known natural phenomenon. That is not enough. *See id.* at 82 (“[S]imply appending conventional steps . . . to laws of nature, natural phenomena, and abstract ideas cannot make those laws, phenomena, and ideas patentable.”); *Genetic Techs.*, 818 F.3d at 1376 (“The inventive concept necessary at step two . . . cannot be furnished by the unpatentable law of nature . . . itself.”).

As explained above, GE developed the claimed HPHT processes in the 1970s, discovering the same natural phenomenon under the same conditions. *See* Ex. A at 4:57-5:11 (showing claimed HPHT conditions), 6:40-50 (“As a result of the present process, at least a

portion of the crystal undergoes some change in color or shade” and can result in “a colorless crystal which has many uses as jewelry, and which frequently is of gem quality.”); *see also* Ex. B ¶¶ [0033]-[0034] (“It is central to the present invention that the HP/HT conditions be within the graphite stable range of the carbon phase diagram. HP/HT conditions are maintained for a time adequate for the color of the discolored diamond to improve.”). The ’189 Patent uses the conventional HPHT technology GE developed in the 1970s to induce the same phenomenon. *See* Compl. Ex. B at 2:53-56, ECF No. 1-2 (discussing patents assigned to GE); *compare also id.* at 3:1-5 (at least 1500°C @ at least 4 GPa), *with* Ex. A at 5:8-23 (1500°C @ 4.8 GPa, 1600°C @ 5.1 GPa, 2000°C @ 6.3 GPa, and 2200°C @ 7 GPa), Fig. 1. Like the unpatentable claims in *Mayo*, the claims of the ’189 Patent require only “picking out the relevant audience” (i.e., CVD diamond technicians) and telling them to perform “well-understood, routine, conventional activity, previously engaged in by those in the field.” *Mayo*, 566 U.S. at 82.

C. The Asserted Claims of the ’078 Patent Are Unpatentable Under § 101

The ’078 Patent is directed to CVD diamond growth. As it acknowledges, CVD diamond growth technology had existed for at least twenty years. Compl. Ex. A at 1:30-51, ECF No. 1-1. The alleged advancement in the ’078 Patent is a narrow one—a movable sample holder with a sheath that contacts the edges of the diamond to reduce temperature gradients along a growth surface. *See id.* at 2:12-65, 4:48-55, 5:1-14, 5:26-59, 8:5-22, 9:30-10:20, 11:20-31, 12:30-46, 12:63-13:3, Figs. 1, 3 6, 7. But none of the asserted claims recite this solution. Instead, they broadly recite a result—“controlling temperature of a growth surface of the diamond such that all temperature gradients across the growth surface are less than 20°C.” *Id.* at 14:65-67, 15:32-34.

1. CVD Diamond Growth and the ’078 Patent

Although its origins go back much farther, modern CVD matured by the 1980s. Since then, CVD has been used to make various materials used in everything from diamonds to

computer chips, image sensors, optical coatings, LEDs, and even medical implants. To grow a crystalline material (e.g., diamond) using CVD, a “seed” crystal is placed inside a reaction chamber, heated, and exposed to reactant vapors with the desired chemistry. The chemicals in the atmosphere react at the surface of the seed crystal, and the crystal begins to grow.

CVD growth parameters—e.g., temperature, pressure, gas flows, etc.—are called the process “recipe.” Because the technology was already 20 years old, many process recipes for growing CVD diamond were well known by the time the application for the ’078 Patent was filed. In fact, others had even disclosed the same recipe conditions recited in the asserted claims.

Compare Compl. Ex. A at 15:3-4 (“pressure of at least 130 torr”), 15:35-37 (“temperature of 900-1400°C”), ECF No. 1-2, *with* Ex. F at 9:28-42 (“pressure in the reaction vessel 7 at 140 ± 5 Torr and the temperature of the prime base material 60 at $1050 \pm 10^\circ\text{C}$ ”). Unsurprisingly, the ’078 Patent spends little time discussing recipe conditions. *See id.* at 13:19-36, 13:51-56, 14:8-39. Instead, it focuses almost exclusively on the alleged novelty—the design and operation of a sample holder for regulating temperature gradients along the diamond growth surface.

2. *American Axle & Manufacturing. v. Neapco Holdings*

The Federal Circuit’s *American Axle* decision addressed a similar situation. The claims related to “a method for manufacturing driveline propeller shafts (‘propshafts’) with liners that are designed to ‘attenuat[e] . . . vibrations transmitted through a shaft assembly.’” *Am. Axle*, 939 F.3d at 1358 (alterations in original) (quoting the asserted patent). Representative claim 1 read:

tuning at least one liner to attenuate at least two types of vibration transmitted through the shaft member; and

positioning the at least one liner within the shaft member such that the at least one liner is configured to damp shell mode vibrations in the shaft member by an amount that is greater than or equal to about 2%, and the at least one liner is also configured to damp bending mode vibrations in the shaft member, the at least one liner being tuned to within about $\pm 20\%$ of a bending mode natural

frequency of the shaft assembly as installed in the driveline system.

Id. at 1359 (quoting a representative claim).

The district court construed the “tuning” term as “controlling the mass and stiffness of at least one liner to configure the liner to match the relevant frequency or frequencies.”⁴ *Id.* (quoting the Joint Appendix). Endorsing that construction, the Federal Circuit concluded: “The claims are directed to tuning liners—i.e., controlling a mass and stiffness of at least one liner to configure the liner to match the relevant frequency or frequencies.” *Id.* at 1361 (quotation marks omitted). “But, the claims’ general instruction to tune a liner amounts to no more than a directive to use one’s knowledge of Hooke’s law, and possibly other natural laws, to engage in an ad hoc trial-and-error process of changing the characteristics of a liner until a desired result is achieved.”⁵ *Id.* at 1364. Because the claims did not recite any means for achieving the claimed result, the claims were unpatentable under § 101 for reciting a natural law. *See id.* at 1364-65 (“This distinction between results and means is fundamental . . .”).

The problem with the asserted claims of the ’078 Patent is the same as in *American Axle*: “[T]he solution . . . is not claimed in the patent.” *Am. Axle*, 939 F.3d at 1363. Each embodiment of the ’078 Patent achieves sub-20° C temperature gradients along the growth surface by using a movable, thermally conductive sample holder that contacts the edges of a diamond growth surface. *See* Compl. Ex. A at Abstract, 2:12-65, 4:51-55, 5:5-8, 8:11-18, 10:15-20, 11:20-31,

⁴ Note the similarity with the asserted claims of the ’078 Patent. *See* Compl. Ex. A at 14:65-67, ECF No. 1-1 (“controlling temperature of a growth surface of the diamond such that all temperature gradients across the growth surface are less than 20° C”).

⁵ The specification of the ’078 Patent describes a similar ad hoc trial-and-error process: “[T]he main process controller 146 controls the temperature of the growth surface such that all temperature gradients across the growth surface are less than 20° C. by adjusting at least one of microwave power to the plasma 141, the coolant flow rate, coolant temperature, gas flow rates and reactant flow rate.” Compl. Ex. A at 6:65-7:4, ECF No. 1-1.

12:36-46, ECF No. 1-1. But instead of reciting this solution, the asserted claims “were drafted in such a result-oriented way that they amount[] to encompassing ‘the principle in the abstract’ no matter how implemented.” *Am. Axle*, 939 F.3d at 1365 (quoting *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1343 (Fed. Cir. 2018)).

3. Argument

a. Claim 1 of the '078 Patent Is Representative

Claim 1 is representative because, like all the asserted claims, it combines known CVD growth conditions with a step of “controlling temperature of a growth surface of the diamond such that all temperature gradients across the growth surface are less than 20° C.” *See* Compl. Ex. A at 14:64-15:4, ECF No. 1-1. Adding known process conditions to this step is simply “conventional pre- and post-solution activity.” *Am. Axle*, 939 F.3d at 1368 (discussing *Flook*, 437 U.S. 584). “[N]either such conventional additions, nor the limiting of the use of a natural law or mathematical formula to a particular process suffices to create patent eligibility.” *Id.* Because the claims “are substantially similar and linked to the same law of nature”—a natural link between temperature gradients on a growth surface and improved crystal quality—“analyzing representative [claim 1] is proper.” *Cleveland Clinic*, 859 F.3d at 1360 (quotation omitted).

b. Alice Step One: The Claims Recite a Natural Law

Under step one of *Alice*, a court must determine whether the claims are directed to a law of nature. 573 U.S. at 216-17. Claim 1 primarily recites a prior-art process—namely, “growing single-crystal diamond by microwave plasma chemical vapor deposition” (“MPCVD”) above a certain pressure. Compl. Ex. A at 15:1-4, ECF No. 1-1. The other asserted claims similarly recite typical recipe conditions, such as being within a certain pressure range (claims 6 and 16), within a certain temperature range (claims 7 and 12), or using certain gas flows (claim 15) to cause a certain range of growth rates (claims 11 and 20). Similar to *American Axle*, the claims only differ

from these well-known conditions by virtue of a functionally claimed result—“controlling temperature of a growth surface of the diamond such that all temperature gradients across the growth surface are less than 20° C.” *Compare Am. Axle*, 939 F.3d at 1359 (“tun[ing] to within about ±20% of a bending mode natural frequency”), *with Compl. Ex. A* at 14:65-67, ECF No. 1-1 (“controlling temperature of a growth surface of the diamond such that all temperature gradients across the growth surface are less than 20° C”).

Like *American Axle*, the asserted claims fail to recite a mechanism for achieving this result. In *American Axle*, the claims failed to state how to tune the liner “to within about +/-20% of a bending mode natural frequency.” 939 F.3d at 1366-67. According to the Federal Circuit, the focus of the claimed advance under step one of *Alice* was “simply the concept of achieving that result, by whatever structures or steps happen to work.” *Id.* at 1367. Here, the claims similarly fail to recite how to “control[] temperature of a growth surface of the diamond such that all temperature gradients across the growth surface are less than 20° C.”

Plaintiffs’ theory of infringement is that all high-quality diamonds grown by MPCVD form under conditions where the growth surface only has temperature gradients below 20° C. *See Ex. G* at 9-10 (“Defendants’ stones are of a quality and structure which evidence relatively uniform temperature control on their respective growth surfaces during manufacture, such that the temperature gradient on the growth surface of each respective diamond is maintained at less than 20 degrees C.”). That is, Plaintiffs contend that the asserted claims of the ’078 Patent can be infringed without the alleged infringer even attempting to produce the desired result.

In *American Axle*, the plaintiffs similarly argued “that one could infringe the claims . . . [e]ven if you didn’t try to [tune] and didn’t know you did it.” 939 F.3d at 1366 (alterations in original). Under Plaintiffs’ infringement theory, the asserted claims of the ’078 Patent are no

different. Plaintiffs suggest any MPCVD process that results in a high-quality diamond necessarily results from having all temperature gradients across the growth surface less than 20° C. In other words, the laws of nature require it, no matter how it happens. As in *American Axle*, therefore, the asserted claims of the '078 Patent are directed to a law of nature. *See id.*

The asserted claims of the '078 Patent insert an arbitrary value (20° C) to quantify a well-known natural law that a uniform temperature across a crystal growth surface produces crystals with fewer defects. *See, e.g.*, Ex. H at 3-5; Ex. I at 2-3, 5-6; Ex. J at 1:27-36; Ex. K at 5:59-6:23; Ex. L at 2:5-13; Ex. M at 8:10-14; Ex. N at 2:32-35; Ex. O at 6, 8. Similarly, in *American Axle*, the Federal Circuit found that reducing certain vibrations by at least 2% and tuning a liner “to within about +/-20% of a bending mode natural frequency” was effectively a direction to apply a natural law. *See* 939 F.3d at 1366 (“Like the claims in *Flook*, the claims of the [asserted] patent are directed to the utilization of a natural law . . . in a particular context.”).

c. *Alice* Step Two: The Claims Lack an Inventive Concept

Step two of *Alice* asks whether a claim “contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” 573 U.S. at 221. Method claims fail if “the steps in the claimed processes (apart from the natural laws themselves) involve well-understood, routine, conventional activity previously engaged in by in the field.” *Mayo*, 566 U.S. at 73.

Here, other than the natural law related to the claimed temperature gradient, the claims merely perform conventional MPCVD diamond growth, which is not enough. They do not recite new or useful process steps. As the '078 Patent acknowledges, such MPCVD growth processes had already been known for at least twenty years. *See* Compl. Ex. A at 1:30-51, ECF No. 1-1. The asserted claims of the '078 Patent “merely amount[] to an application of a natural law ([i.e., provide a small temperature gradient for high-quality crystal growth]) to a complex system

without the benefit of instructions on how to do so.” *Am. Axle*, 939 F.3d at 1366. Accordingly, the asserted claims of the ’078 Patent lack an inventive concept.

D. These Issues Under § 101 Can Be Resolved on the Pleadings

Subject-matter eligibility can be resolved on the pleadings when the material facts are not genuinely disputed. *Berkheimer*, 881 F.3d at 1368; *SAP*, 898 F.3d at 1166. But a genuine dispute of material fact “requires more than labels and conclusions.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 555 (2007). A court need not assume the truth of “bald assertions and conclusions of law,” *Spool v. World Child Int’l Adoption Agency*, 520 F.3d 178, 183 (2d Cir. 2008) (quotation marks omitted), or “wholly conclusory” factual allegations, *Krys v. Pigott*, 749 F.3d 117, 128 (2d Cir. 2014); *see also Twombly*, 550 U.S. at 555 (“[A] formulaic recitation . . . will not do.”).

In addition, “add[ing] generic allegations to the effect that [the] claimed invention represented a novel solution to a previously-unsolved industry problem” is irrelevant where “[the] claimed invention simply recites a patent-ineligible idea as implemented by ‘industry standard’ technology.” *Uniloc USA, Inc. v. Apple Inc.*, No. C 18-00358 WHA, 2018 U.S. Dist. LEXIS 84239, at *24-25 (N.D. Cal. May 18, 2018); *see also Diamond v. Diehr*, 450 U.S. 175, 188-91 (1981) (explaining that novelty has “no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter”).

In this case, Plaintiffs cannot credibly dispute the material facts of this motion because they come from the Complaint, Plaintiffs’ contentions, and the patents. For example, the ’189 Patent acknowledges that HPHT treatments improve the optical clarity of at least Type IIa natural diamonds. *See* Compl. Ex. B at 1:39-41, ECF No. 1-2 (“For type II natural diamond, the color changes from brown to colorless”). The Complaint admits “CVD diamonds are typically Type IIa,” Compl. ¶ 80, ECF No. 1, and CVD diamonds “have the same physical, chemical and optical qualities as diamonds mined from the earth,” *id.* ¶ 77. The ’189 Patent also

admits it uses conventional HPHT technology developed in the 1970s. *See* Compl. Ex. B at 2:53-56, ECF No. 1-2 (citing two GE patents); *compare id.* at 3:1-5 (at least 1500°C @ at least 4 GPa), *with* Ex. A at 5:8-23 (describing claimed conditions), Fig. 1 (showing the same).

The '078 Patent similarly acknowledges CVD diamond growth had been known “[f]or at least twenty years,” including by using MPCVD and “by using a combination of methane, or another simple hydrocarbon gas, and hydrogen gas at reduced pressures and temperatures of 800–1200° C.” Compl. Ex. A at 1:30-51, ECF No. 1-1 (citing articles from 1981 and 1983); *see also id.* at claim 7 (claiming a temperature of “1000–1400° C”), claim 12 (claiming a temperature of “900–1400° C”). It also acknowledges known processes for producing growth rates of “a few micrometers per hour.” *Id.* at 1:52-54; *see also id.* at claims 11, 20 (both claiming growth rates of “1 to 150 micrometer per hour”). The '078 Patent makes clear the alleged advancement is a special apparatus for controlling temperature gradients across the diamond growth surface. *See, e.g., id.* at Abstract, 2:12-3:13. Plaintiffs cannot dispute that the asserted claims fail to recite such an apparatus or that minimizing temperature gradients was known to improve crystal quality.

Plaintiffs cannot remove these underlying deficiencies. Even if Plaintiffs were to allege that the asserted claims of the '189 and '078 Patents differ from or improve conventional technology, the patents themselves tell a different story. *See Secured Mail Sols., LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 912-13 (Fed. Cir. 2017) (“The fact that many of these technologies were well-known can be discerned from Secured Mail’s patents themselves.”); *Automated Tracking Solutions, LLC v. Coca-Cola Co.*, 723 F. App’x 989, 995 (Fed. Cir. 2018) (nonprecedential) (finding “no allegations, which when accepted as true, would . . . create a factual issue” because the patent indicated the associated technology was conventional). Accordingly, this Court can resolve patentable subject-matter eligibility on the pleadings.

III. PLAINTIFFS' ALLEGATIONS OF INFRINGEMENT LACK PLAUSIBILITY

Rule 8 of the Federal Rules of Civil Procedure requires a complaint to allege “enough facts to state a claim to relief that is plausible on its face.” *Twombly*, 550 U.S. at 570. “A claim has facial plausibility when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged,” which demands “more than a sheer possibility that a defendant has acted unlawfully.” *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009); *accord In re Bill of Lading Transmission & Processing Sys. Patent Litig.*, 681 F.3d 1323, 1331 (Fed. Cir. 2012); *Palin v. New York Times Co.*, 940 F.3d 804, 810 (2d Cir. 2019). If a complaint “pleads facts that are ‘merely consistent with’ a defendant’s liability, it ‘stops short of the line between possibility and plausibility of entitlement to relief.’” *Iqbal*, 556 U.S. at 678 (quoting *Twombly*, 550 U.S. at 557); *accord Bill of Lading*, 681 F.3d at 1332; *Yamashita v. Scholastic Inc.*, 936 F.3d 98, 104 (2d Cir. 2019).

Although a court must assume well-pleaded factual allegations are true, not all allegations are well-pleaded. The assumption of truth “is inapplicable to threadbare recitals of a cause of action’s elements, supported by mere conclusory statements.” *Iqbal*, 556 U.S. at 678; *see also Nielsen v. Rabin*, 746 F.3d 58, 62 (2d Cir. 2014) (“[W]e are not required to credit conclusory allegations or legal conclusions couched as factual allegations.”); *Bill of Lading*, 681 F.3d at 1331 (“[W]e are not required to accept as true legal conclusions or unwarranted factual inferences.” (internal quotation marks omitted)).

A. The Complaint Does Not Plausibly Allege Direct Infringement

1. The Complaint Does Not Plausibly Allege That Any of the Accused Products Are Made According to the Claimed Methods

The Complaint’s direct infringement allegations fail to sufficiently identify the accused products and fail to plausibly allege that the accused products are made by the claimed methods.

The Complaint tautologically defines “infringing CVD diamonds” and “infringing CVD diamond products” as those that “satisfy each and every limitation of one or more claim” of the asserted patents. Compl. ¶¶ 94, 120, ECF No. 1. This fails to satisfy *Twombly/Iqbal*.

In *Artrip v. Ball Corp.*, 735 Fed. App’x 708, 714 (Fed. Cir. 2018) (nonprecedential), the Federal Circuit recently affirmed dismissal of a complaint that identified the accused products as those “that include each element of each patent’s single independent claim, which the complaint [also] recited.” *Id.* The Court concluded that, because the plaintiff did not allege infringement “other than by broad functional language,” the complaint was deficient. *Id.* Similarly, here, the allegations parrot the claims and are so vague they encompass essentially all CVD-grown diamonds. *See Iqbal*, 556 U.S. at 678 (explaining that plausibility requires a showing “that success on the merits is more than a ‘sheer possibility’”); *Prism Techs., LLC v. AT&T Mobility, LLC*, No. 8:12CV122, 2012 U.S. Dist. LEXIS 126630, at *12 (D. Neb. Sep. 6, 2012) (noting a concern that a plaintiff could “potentially induce a defendant to settle a meritless claim”).

The Complaint also fails to plausibly allege the Defendants practice the claimed methods. “[F]ailure to practice even a single [claim] element” results in noninfringement, and “there is always an obvious alternative explanation where a plaintiff does not allege [plausible] facts about each element.” *Atlas IP, LLC v. Exelon Corp.*, 189 F. Supp. 3d 768, 775 (N.D. Ill. 2016).

As to Count I (the ’078 Patent), the Complaint provides no basis for allegations that the accused CVD diamonds are formed by controlling temperature gradients across the growth surface or under the claimed conditions. It just parrots the claims. *See* Compl. ¶¶ 98-100, ECF No. 1. A court is “not required to credit conclusory allegations” like these. *Nielsen*, 746 F.3d at 62. Plaintiffs cannot plausibly allege the accused diamonds are formed under such conditions merely because they are made by CVD. *See* Compl. ¶¶ 95-98, ECF No. 1. Such an inference is

unreasonable, especially in view of obvious alternative explanations for how the accused diamonds are formed. *See L-7 Designs, Inc. v. Old Navy, LLC*, 647 F.3d 419, 430 (2d Cir. 2011) (“Plausibility . . . depends on . . . the existence of alternative explanations so obvious that they render plaintiff’s inferences unreasonable.”). The ’078 Patent concedes that CVD-grown diamonds had existed “[f]or at least the last twenty years.” Compl. Ex. A at 1:30-51, ECF No. 1-1. For Plaintiffs to infer the accused diamonds are formed by controlling temperature gradients across the growth surface and under the claimed conditions is not reasonable when other CVD processes had been known for decades. *See id.*

As to Count II (the ’189 Patent), the Complaint fails to plausibly allege the accused diamonds are processed under the recited conditions. *See* Compl. ¶¶ 125-127, ECF No. 1. As with the ’078 Patent, Plaintiffs merely parrot the claims. *See id.* Moreover, Plaintiffs infer the accused diamonds are processed under these conditions merely because they are Type IIa diamonds. *See id.* But, as the complaint acknowledges, “CVD diamonds are typically Type IIa.” *Id.* ¶ 80. The Complaint does not allege that the claimed method is required to create Type IIa CVD diamonds, nor could it. Plaintiffs also cannot allege that the claimed method is required to improve the clarity of such diamonds because it was well known that annealing under conditions other than those recited in claim 1 can have the same effect. *See, e.g.*, Ex. P ¶¶ [0020], [0040] (annealing at conditions within the diamond-stable phase). Plausibility does not exist if there are “alternative explanations so obvious that they render plaintiff’s inferences unreasonable.” *L-7 Designs*, 647 F.3d at 430.

Because the Complaint fails to sufficiently identify the accused products and fails to plausibly allege that the accused products are made according to the claimed methods, the allegations of direct infringement against 2AT and PGD should be dismissed.

2. The Complaint Does Not Plausibly Allege That Defendants Perform Infringing Acts in the United States

It is “well-established that the reach of section 271(a) is limited to infringing activities that occur within the United States.” *MEMC Elec. Mats., Inc. v. Mitsubishi Mats. Silicon Corp.*, 420 F.3d 1369, 1375-76 (Fed. Cir. 2005). Thus, a plaintiff “must allege facts plausibly identifying sufficient infringing activity by that Defendant that took place within the United States, such as the importation of the accused products into the United States.” *Mayne Pharma Int'l PTY Ltd. v. Merck & Co.*, Civil Action No. 15-438-LPS-CJB, 2015 U.S. Dist. LEXIS 162912, at *10 (D. Del. Dec. 3, 2015). Infringement under § 271(a) cannot “be predicated [on] acts wholly done in a foreign country.” *Id.* Relatedly, § 271(g) “does not apply to a foreign manufacturer who does not itself import the allegedly infringing product into the United States.” *Pfizer Inc. v. Aceto Corp.*, 853 F. Supp. 104, 105 (S.D.N.Y. 1994). Moreover, § 271(g) does not apply to products “materially changed by subsequent processes.” 35 U.S.C. § 271(g)(1).

Here, the Complaint does not plausibly allege any acts in the United States that would constitute direct infringement by 2AT. The Complaint alleges only that “at least some of PGD’s CVD diamonds are manufactured by [2AT] in Singapore,” Compl. ¶ 37, ECF No. 1, and “at least some of PGD’s annealed diamonds are annealed by [2AT] in Singapore,” *id.* ¶ 38. It cannot plausibly allege that 2AT performs those activities in the United States.

Boilerplate allegations that Defendants infringe “by making, using, offering to sell, and/or selling within the United States, or importing into the United States, products that satisfy each and every limitation of one or more claims,” *id.* ¶ 94; *see also id.* ¶ 120, are not entitled to weight because they simply parrot 35 U.S.C. § 271(a). *See, e.g., Nielsen*, 746 F.3d at 62. Such allegations are also illogical. The asserted patent claims recite *methods*, and a diamond cannot perform a method. *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 850 (Fed. Cir. 2010)

(explaining that direct infringement of a method claim under § 271(a) occurs only when someone performs the method). 2AT does not perform any acts related to diamond fabrication or processing in the United States. PGD, a sales organization, does not perform any acts related to diamond fabrication or processing at all. Moreover, allegations that 2AT “import[s] CVD diamonds and/or annealed diamonds to locations in the United States,” Compl. ¶ 43, ECF No. 1, and “imports into New York State and the United States infringing CVD diamonds,” *id.* ¶¶ 106, 130, are conclusory, baseless, and deserve no weight. Plaintiffs also fail to allege that CVD-grown diamonds are not materially changed by subsequent processes before becoming gemstones like the allegedly imported products, *see* 35 U.S.C. § 271(g).

Because Plaintiffs have not plausibly alleged direct infringement in the United States, the allegations of direct infringement should be dismissed.

B. The Complaint Does Not Plausibly Allege Indirect Infringement

“Indirect” infringement refers collectively to induced infringement under 35 U.S.C. § 271(b) and contributory infringement under 35 U.S.C. § 271(c). Where “plaintiffs have not alleged a plausible claim of direct infringement, the claim for [indirect] infringement also fails.” *Gym Door Repairs, Inc. v. Young Equip. Sales, Inc.*, 206 F. Supp. 3d 869, 892 (S.D.N.Y. 2016). The Complaint’s allegations of induced and contributory infringement are thus defective for the same reasons as its allegations of direct infringement noted in Section III.A above.

In addition, the Complaint fails to plausibly allege the scienter required for indirect infringement. A defendant cannot be liable for indirect infringement if “he did not know the acts were infringing.” *Commil USA, LLC v. Cisco Sys.*, 135 S. Ct. 1920, 1928 (2015). The Complaint alleges only that 2AT and PGD knew of or were willfully blind to the ’078 and ’189 Patents because Devi Shankar Misra is “a named inventor on at least seven patents relating to diamonds.” Compl. ¶¶ 111-12, 135-36, ECF No. 1. According to the Complaint, Dr. Misra knew

or should have known of the asserted patents because obtaining a patent requires “prior art searches of the technological field.” *See id.* ¶¶ 111-112, 135-137. This allegation is implausible.

Courts have deemed inferences like this one “legal conclusion[s] couched as . . . factual allegation[s].” *Smartwater, Ltd. v. Applied DNA Scis., Inc.*, No. 12-CV-5731 JS AKT, 2013 U.S. Dist. LEXIS 139588, at *21 (E.D.N.Y. Sept. 27, 2013) (quoting *Byun v. Amuro*, No. 10-CV-5417, 2011 U.S. Dist. LEXIS 100472, at *9 (S.D.N.Y. Sept. 6, 2011)). Many patents related to diamonds at the time. Notably, the required searching did not unearth either of the asserted patents, which is evident from their absence in the prior art listed on Dr. Misra’s patents. Moreover, an applicant has “no general duty to conduct a prior art search.” *E.g., Bruno Indep. Living Aids, Inc. v. Acorn Mobility Servs., Ltd.*, 394 F.3d 1348, 1351 n.4 (Fed. Cir. 2005).

Mere knowledge of a patent’s existence also would not show knowledge of *infringement*. *See Commil*, 135 S. Ct. at 1928 (“[The law] requires more. It requires proof the defendant knew the acts were infringing.”). To be willfully blind, Defendants must have “believed there was a high probability that a fact exist[ed] and then t[aken] active steps to avoid learning of that fact.” *Smartwater*, 2013 U.S. Dist. LEXIS 139588, at *21 (quoting *On Site Energy Co., Inc. v. MTU Onsite Energy Corp.*, 10-CV-1671 (JS) (WDW), 2013 U.S. Dist. LEXIS 109009, at *14 (E.D.N.Y. Aug. 2, 2013)). Such an inference is not plausible from Plaintiffs’ allegations. Because the Complaint’s only remaining allegations are threadbare recitals of the elements for induced infringement, its induced infringement allegations are implausible. *See, e.g., Gradient Enters., Inc. v. Skype Techs. S.A.*, 848 F. Supp. 2d 404, 409 (W.D.N.Y. 2012).

The allegations of contributory infringement also fail. An actionable claim for contributory infringement requires, among other things, plausible allegations that the accused instrumentalities have “no substantial noninfringing uses.” *Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d

1321, 1326 (Fed. Cir. 2010). The Complaint, however, provides no such allegations, let alone plausible ones. It just asserts, without elaboration, that 2AT and PGD have contributed to patent infringement. *See* Compl. ¶¶ 56, 59, ECF No. 1. Such conclusory allegations are insufficient.

Because the Complaint fails to plausibly allege indirect infringement, the allegations of induced and contributory infringement against 2AT and PGD should be dismissed.

C. The Complaint Does Not Plausibly Allege Willful Infringement

To plead willful infringement, “courts have generally required a complaint to allege facts that, at a minimum, show direct infringement.” *Gradient Enters.*, 848 F. Supp. 2d at 409. Further, a complaint must “demonstrate[] a link between . . . allegations of knowledge of the patents-in-suit and . . . allegations that the risks of infringement were either known or were so obvious that they should have been known.” *Iron Gate Sec., Inc. v. Lowe’s Companies, Inc.*, 15-CV-8814 (SAS), 2016 U.S. Dist. LEXIS 34061, at *12-13 (S.D.N.Y. Mar. 16, 2016).

Because the Complaint fails to plausibly allege direct or indirect infringement, dismissal of the willful infringement claims is appropriate. Moreover, the allegations of knowledge, *see* Compl. ¶¶ 115-117, 139-141, ECF No. 1, fail for at least the reasons stated in the preceding section. Accordingly, Plaintiffs’ willful infringement allegations should be dismissed.

IV. CONCLUSION

For the foregoing reasons, PGD and 2AT each respectfully request an order ruling as follows: (1) the asserted claims of the ’189 and ’078 Patents are invalid under 35 U.S.C. § 101 for failure to recite patent-eligible subject matter; and (2) Plaintiffs’ Complaint is dismissed under Fed. R. Civ. P. 12(b)(6) for failure to state a claim for which relief can be granted.

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Respectfully submitted,

s/ William P. Deni, Jr.
William P. Deni, Jr.
J. Brugh Lower
GIBBONS P.C.
One Pennsylvania Plaza, 37th Floor
New York, NY 10119-3701
Tel: (212) 613-2000
Fax: (212) 290-2018
wdeni@gibbonslaw.com
jlower@gibbonslaw.com

Anand K. Sharma (*pro hac vice*)
J. Preston Long (*pro hac vice*)
**FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP**
901 New York Avenue, NW
Washington, DC 20001
Tel: (202) 408-4000
Fax: (202) 408-4400
anand.sharma@finnegan.com
j.preston.long@finnegan.com

Attorneys for Defendants
Pure Grown Diamonds, Inc. and
Ila Technologies Pte. Ltd.